IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of: Albert Charles McNamara	§ § §	Attorney Docket No. P-109009(Reissue)
Patent No. 5,901,641	§ §	Group Art Unit: ____________
Issued: May 11, 1999	§ §	Examiner: ________________
Title: Baffle for Deep Fryer Heat Exchanger	§ §	

BOX REISSUE
Commissioner of Patents and Trademarks
Washington, D.C. 20231

PRELIMINARY AMENDMENT FOR REISSUE APPLICATION

Applicant respectfully requests entry of the Amendments set forth below.

IN THE SPECIFICATION:

Please amend the Specification as follows:

Please substitute the following paragraph, with marked changes, for the paragraph beginning at Line 36 of Column 3 and ending at Line 65 of Column 3.

"A baffle plate 40 having a longitudinal axis L is shown in Fig. 3. Plate 40 has a plurality of tabs 42 extending outwardly from each of first surface 43 and second surface 45 of plate 40. Tabs 42 preferably extend outwardly at an acute angle with respect to the surface from which they extend. More preferably, tabs 42 extend outwardly at an angle of 45° with respect to the surface from which they extend. Each tab 42 has a longitudinal axis A which is perpendicular to crease 44. In a preferred embodiment, each tab 42 is formed by cutting plate 40 and bending a portion of plate 40 outwardly, forming crease 44 at the joint where tab 42 is bent away from plate 40. Although tabs 42

may be formed by securing separate pieces of material to plate 40, such as by welding, in which case crease 44 would extend along the line of intersection of tab 42 and plate 40, forming tabs 42 by bending a portion of plate 40 outwardly removes the welds as a potential point of failure of plate 40. Web 46 is the portion of plate 40 which remains between tabs 42 adjacent to one another in a direction substantially perpendicular to longitudinal axis A. In the embodiment illustrated in Fig. 3, where the planes of first surface 43 and second surface 45 lie in a vertical plane, web 46 is between two vertically adjacent tabs 42. It is to be appreciated that plate 40 may be oriented in a different manner and that web 46 would lie between adjacent tabs in a direction other than vertical. It is also to be appreciated that tabs 42 may have a shape other than the substantially rectangular shape shown in Fig. [2] 3, e.g., circular, oval, or any other suitable shape which will become obvious to those skilled in the art given the benefit of this disclosure."

Please insert the following new paragraphs at Column 6, Line 13 of the Specification.

"As shown in Fig. 3, in one embodiment, crease 44 of each tab 42 is downstream with respect to the flow of the heating fluid designated as "B" in Figure 3. As shown in Fig. 3, heating fluid B is deflected by tabs 42.

As shown in Fig. 3 and as discussed herein, tabs 42 comprise portions of plate 40 which are bent outwardly away from either first surface 41 or second surface 43 of plate 40. As shown in Figs. 3 and 6-9, at least one of tabs 42 is positioned in the first portion 54 of plate 40 on one side of the longitudinal axis of plate 40 designated as "L" in Figs. 3 and 6-9 and at least one other of tabs 42 is

positioned in second portion 56 of plate 40 which is on the other side of plate 40's longitudinal axis L.

As shown in Figs. 3, 4, and 6-9, at least some of tabs 42 are positioned in a plurality of rows of tabs. As shown in these Figures, in some embodiments, the rows extend in a direction substantially perpendicular to the longitudinal axis of plate 40. As shown in Figs. 3, 4, and 6-9, each row of tabs has a tab 42 positioned in first portion 54 of plate 40 and a tab 42 positioned in second portion 56 of plate 40. As shown in Fig. 3, in one embodiment, a row of tabs has a tab 42a extending outwardly away from first surface 43 of plate 40, an adjacent tab 42b extending outwardly away from second surface 45 of plate 40 and a third tab 42c which is adjacent tab 42b and which extends outwardly away from first surface 43 of plate 40. As shown in Fig. 3, other rows of tabs may have the individual tabs extending from either the first surface 43 or second surface 45.

As shown in Figs. 3 and 6-9, in some embodiments, for the purpose of describing location and distribution of invention elements, a center line of plate 40 may be located where the longitudinal axis is shown located along the center of plate 40. As shown in the figures, in some embodiments tabs 42, holes 58 and tab/hole pairs are arranged so the same are found on both sides of the center line. Further, as shown in the figures and described herein, in some embodiments these elements are also arranged symmetrically in a pattern about the center line. In such embodiments, as shown in the figures, the portion of the plate 40 referred to as first portion 54 is instead referred to as first half 54 and the portion of plate 40 referred to as second portion 56 is instead referred to as second half 56.

As shown in Fig. 3, each tab 42 is adjacent to its corresponding hole 58 in plate 40 created by bending tab 42 from plate 40. At least a portion of a side of each hole 58 is comprised of crease 44 of tab 42 that hole 58 is adjacent to. As shown in Fig. 3, crease 44 both connects tab 42 to plate 40 and is at least a portion of a side of hole 58. As shown in Fig. 3 and reflected in Figs. 4-10, tabs 42 extend outwardly from plate 40 over at least part of their adjacent corresponding holes 58. As expressly shown in Fig. 3, and as is implicit in Figs. 4-10 and the above discussion, heating fluid B is flowable through holes 58 created in plate 40 by bending tabs 42 out of plate 40. Further, in some embodiments, as shown in Fig. 3 and implicit in Figs 4-10, heating fluid B is diverted by inner surface 60 of tab 42 through tab 42's corresponding hole 58.

As shown in Figs. 3, 4, 5, and 10, the tabs 42 are not in contact with heat transfer tube 16. The baffle plate 40 is located and angled within transfer tube 16, and each of the plurality of tabs 42 on baffle plate 40 have a length and angle which positions tabs 42 relative to heat transfer tube 16 so the tabs 42 are not in contact with heat transfer tube 16. No structure is shown in this application which prevents the heated gas from flowing between the end of each tab 42 and the portion of heat transfer conduit 16 most closely adjacent to the end of each tab 42. As discussed above, the increased turbulence of flow within heat transfer tube 16 caused by the invented baffle plate improves and enhances heat transfer from the hot gases through heat transfer tube 16 into the vat containing shortening of the deep fat fryer system.

Each tab 42 and its corresponding hole 58, share a common crease 44 and are referred to herein as comprising a "tab/hole pair." As shown in Fig. 3, tab 42a and hole 58a comprise tab 42a/hole 58a

pair. Tab 42b and hole 58b comprise tab 42b/hole 58b pair. Tab 42c and hole 58c comprise tab 42c/hole 58c pair.

As shown in Fig. 3, Web 46a is the portion of plate 40 between tab 42a/hole 58a pair and tab 42b/hole 58b pair. Web 46b is the portion of plate 40 between tab 42b/hole 58b pair and tab 42c/hole 58c pair.

As shown in Figs. 3 and 6-9, each row of tabs 42, holes 58 and tab/hole pairs may be comprised of at least two tabs, two holes or two tab/hole pairs, or at least three tabs, three holes and three tab/hole pairs, or at least four tabs, four holes and four tab/hole pairs. No limit to the number of tabs, holes or tab/hole pairs in a row is shown.

As shown in Figs. 3 and 6-9, each row has n - 1 webs, where n equals the number of tab/hole pairs in the row. If a row is comprised of three tabs and three holes, i.e. three tab/hole pairs, that row has two webs (3 tab/hole pairs - 1 = 2 webs). If a row is comprised of four tabs and four holes, i.e. four tab/hole pairs, that row has three webs (4 tab/hole pairs - 1 = 3 webs).

As shown in Figs. 3-5 and 7-10, the relationship of tabs 42 on the baffle plate 40 is to generally present alternating sizes, arrangements and angles to the flowing heated gas and alternating from extending from first surface 43 and then second surface 45, for the purpose of increasing turbulence. Some rows are presented in which tabs 42 alternately extend from the first side and second side. As shown in the figures, tabs 42 are presented which extend from the first surface of the tab preceding it

(from the point of view of the flowing heated gas of Fig. 3) extend from the second surface and vise versa.

As shown in the Figs., an equal or approximately equal number of tabs, holes, webs, and tab hole pairs may be arranged on either side of the center line of baffle plate 40 on both sides of the baffle plate, which is shown in Figs. 3 and 6-9 as corresponding with longitudinal axis L. As shown in Figs. 3 and 6-9, they may be and arranged generally symmetrically about the longitudinal axis L. As shown in Fig 6, the webs and tabs may be positioned in straight lines, one behind another, in the direction of the longitudinal axis L. As shown in Fig 6, the tabs 42 may be similarly positioned."

IN THE CLAIMS:

Please amend claims 1, 6, 8, 9, 10, 11, 12, 13, 20, 21 and 25 as follows:

1. (Amended) A heat exchanger for a deep fryer system having a gas burner to heat gases flowing through the heat exchanger, at least a portion of the heat exchanger being within a vat containing shortening, the heat exchanger comprising, in combination:

at least one heat transfer conduit having [a heating fluid] hot gases passing therethrough;

a baffle plate disposed within the at least one heat transfer conduit, defining a plane and having a first surface, an opposed second surface, and a longitudinal axis which divides the baffle plate into a first portion and a second portion;

a plurality of tabs, each tab comprised of a portion of the baffle plate which is cut from the baffle plate and bent away from one of the first and second surfaces, the tab leaving a hole in the baffle plate and having a longitudinal axis and extending outwardly away from one of the first and second surfaces of the baffle plate, an intersection of the tab and the baffle plate defining a crease, [at least one] a plurality of the tabs being positioned in the first portion of the baffle plate and [at least one] a plurality of the tabs being positioned in the second portion of the baffle plate, a plurality of the tabs extending outwardly from the first surface and a plurality of the tabs extending outwardly from the second surface; [and]

a plurality of webs, each web separating a tab from another tab adjacent the tab in a direction substantially perpendicular to the longitudinal axis of the tab;

a plurality of rows comprised of tabs and webs, each row having at least three tabs and at least two webs; and

the baffle plate positioned within the heat transfer conduit and the tabs having a length and an angle which position the tabs relative to the heat transfer conduit so the tabs do not contact the heat transfer conduit and do not prevent the hot gases from flowing between the tabs and the portions of the heat transfer conduit most closely adjacent to each of the tabs.

6. (Amended) A heat exchanger according to claim 1, wherein the crease of [each tab] the plurality of tabs forms an acute angle with the longitudinal axis of the baffle plate to provide additional mixing of the hot gases.

8. (Amended) A heat exchanger according to claim [4] 1, wherein the tabs are arranged in a plurality of rows, each row extending in a direction substantially perpendicular to the longitudinal axis of the baffle plate, each row having at least three tabs and the rows alternate between having the crease of each tab in a row form an acute angle with a portion of a longitudinal edge of the baffle plate which is downstream, with respect to the flow of [heating] hot [fluid] gases, of the row and having the crease of each tab in a row form an acute angle with a portion of the longitudinal edge of the baffle plate which is upstream, with respect to the flow of [heating] hot [fluid] gases, of the row.

9. (Amended) A heat exchanger according to claim [4] 1, wherein at least one row having the crease of each tab in that row form an acute angle with a portion of a longitudinal edge of the baffle plate which is downstream, with respect to the flow of [heating] hot [fluid] gases, of that row is separated from at least one other row having the crease of each tab in that other row form an acute angle with a portion of the longitudinal edge of the baffle plate which is upstream, with respect to the flow of [heating] hot [fluid] gases, of that row by a separate row having the crease of each tab in that separate row form a right angle with the longitudinal edge of the baffle plate.

10. (Amended) A heat exchanger according to claim 1, wherein the crease of at least one tab is positioned directly downstream, with respect to the flow of [heating] hot [fluid] gases, of the web between two tabs which are adjacent and upstream of the at least one tab.

11. (Amended) A heat exchanger according to claim 1, wherein the crease of each tab is upstream, with respect to the flow of [heating] hot [fluid] gases, of a main body of the each tab.

12. (Amended) A heat exchanger according to claim 1, wherein the crease of each tab is downstream, with respect to the flow of [heating] hot [fluid] gases, of a main body of the each tab.

13. (Amended) A heat exchanger according to claim 1, wherein the crease of at least one tab is downstream, with respect to the flow of [heating] hot [fluid] gases, of a main body of the at least one tab and the crease of at least one other tab is upstream, with respect to the flow of [heating] hot [fluid] gases, of the main body of the at least one other tab.

20. (Amended) A heat exchanger according to claim 1, wherein a portion of the baffle plate has a greater number of tabs than an equally sized portion of the baffle plate which is upstream, with respect to the flow of [heating] hot [fluid] gases, of the portion of the baffle plate.

21. (Amended) A heat exchanger according to claim 1, wherein the number of tabs per unit length increases along the baffle plate in a downstream direction with respect to the flow of [heating] hot [fluid] gases.

25. (Amended) A baffle for a heat exchanger in a deep fryer, the heat exchanger having at least one heat transfer conduit with [heating] hot [fluid] gases passing therethrough, comprising, in combination:

a baffle plate positioned within the at least one heat transfer conduit defining a plane and having a first surface, an opposed second surface, and a longitudinal axis which divides the baffle plate into a first portion and a second portion;

a plurality of rows of tabs, each tab comprising a portion of the baffle plate bent outwardly from one of the first and second surfaces, having a longitudinal axis, and defining a crease along an intersection of the tab and the baffle plate, at least one tab in each row being positioned in the first portion of the baffle plate, at least one tab in each row being positioned in the second portion of the baffle plate, each row having the crease of all of its tabs form an acute angle with one of a portion of a longitudinal edge of the baffle plate which is upstream, with respect to the flow of [heating] hot [fluid] gases, of a main body of its respective tab and a portion of the longitudinal edge which is downstream, with respect to the flow of [heating] hot [fluid] gases, of the main body of its respective tab and the rows adjacent to the each row having the crease of all of their tabs form an acute angle with the other of a portion of the longitudinal edge which is upstream, with respect to the flow of [heating] hot [fluid] gases, of the main body of its respective tab and a portion of the longitudinal edge which is downstream, with respect to the flow of [heating] hot [fluid] gases, of the main body of its respective tab; and

a plurality of webs, each web separating a tab from another tab adjacent the tab in a direction substantially perpendicular to the longitudinal axis of the tab, the crease of at least one tab being directly downstream, with respect to the flow of [heating] hot [fluid] gases, of the web between two

other tabs which are adjacent and upstream, with respect to the flow of [heating] hot [fluid] gases, of the at least one tab;

wherein the number of tabs per unit length increases along the baffle plate in a downstream direction with respect to the flow of [heating] hot [fluid] gases.

Please add new claims 26-43 as follows:

26. A heat exchanger for a deep fryer system having a gas burner to heat gas flowing through the heat exchanger, at least a portion of the heat exchanger being within a vat containing shortening, the heat exchanger comprising, in combination:

at least one heat transfer conduit having hot gases passing therethrough;

a baffle plate disposed within the at least one heat transfer conduit defining a plane and having a first surface, an opposed second surface, and a longitudinal axis which divides the baffle plate into a first portion and a second portion;

a plurality of tabs, each tab having a longitudinal axis and extending outwardly away from one of the first and second surfaces of the baffle plate, an intersection of the tab and the baffle plate defining a crease, the crease being created by bending the tab from the baffle plate, at least one of the tabs being positioned in the first portion of the baffle plate and at least one of the tabs being positioned in the second portion of the baffle plate;

the baffle plate being positioned within the heat transfer conduit and the tabs having a length and an angle which position the tabs relative to the heat transfer conduit so the tabs do not contact the heat transfer conduit and do not prevent the hot gases from flowing between the tabs and those portions of the heat transfer conduit most closely adjacent to each of the tabs;

the tabs being comprised of a portion of the baffle plate which is cut from the baffle plate and bent away from one of the first and second surfaces, each of the tabs leaving a hole in the baffle plate;

at least a portion of a side of each hole comprised of the crease of the tab which was cut and bent from the baffle plate to leave the hole, the tab and the hole which share a crease defining a tab/hole pair;

a plurality of webs, each web separating a first tab/hole pair from a second tab/hole pair which is adjacent to the first tab/hole pair in a direction substantially perpendicular to the longitudinal axis of the tab;

a plurality of the tabs being bent outwardly away from the first surface and a plurality of the tabs being bent outwardly away from the second surface;

a plurality of rows of tab/hole pairs, each row extending in a direction substantially perpendicular to the longitudinal axis of the baffle plate and having at least three tab/hole pairs, each

of the tab/hole pairs in each row being separated from each adjacent tab/hole pair in the row by a web;

there being at least two webs in each row of tab/hole pairs, the webs in each row of the tab/hole pairs comprising a row of webs extending in a direction substantially perpendicular to the longitudinal axis of the baffle plate;

a plurality of rows of webs;

a plurality of rows of tab/hole pairs, which rows each have at least one tab/hole pair positioned in the first portion of the baffle plate and at least one tab/hole pair positioned in the second position of the baffle plate;

a plurality of rows of tab/hole pairs, each row of table/hole pairs having at least one tab extending outwardly away from the first surface of the baffle plate and at least one tab extending outwardly away from the second surface of the baffle plates;

the baffle plate being positioned within the heat transfer conduit and shaped so that the tabs are capable of deflecting the hot gases so that the hot gases are capable of flowing (1) through the holes, (2) between the tabs, (3) adjacent to the webs and (4) between the tabs and the heat transfer conduit so the baffle plate, tabs, and holes are capable of collectively causing increased turbulence of the hot gases passing through the heat transfer conduit, the increased turbulence improving heat transfer from the hot gases within the heat transfer conduit to the shortening within the vat of the

deep fryer system as compared to a similar heat exchanger for a deep fryer system which does not utilize a baffle plate.

27. A heat exchanger according to Claim 26 wherein a plurality of tabs are positioned directly upstream, with respect to the flow of hot gases, of the web between two tabs which are adjacent to each other and downstream of the plurality of tabs; and

a plurality of tabs are positioned directly downstream, with respect to the flow of hot gases, of the web between two tabs which are adjacent and downstream of the plurality of tabs.

28. A heat exchanger according to Claim 26 wherein a plurality of the webs are positioned in a straight line, one behind another, in the direction of the longitudinal axis of the baffle plate.

29. A heat exchanger for a deep fryer system having a gas burner to heat gas flowing through the heat exchanger, at least a portion of the heat exchanger being contained within a vat containing shortening, the heat exchanger comprising, in combination:

at least one heat transfer conduit having hot gases passing therethrough;

a baffle plate disposed within the at least one heat transfer conduit defining a plane and having a first surface, an opposed second surface, and a longitudinal axis which divides the baffle plate into a first portion and a second portion;

a plurality of tabs, each tab having a longitudinal axis and extending outwardly away from one of the first and second surfaces of the baffle plate, an intersection of the tab and the baffle plate defining a crease, the crease being created by bending the tab from the baffle plate, at least one of the tabs being positioned in the first portion of the baffle plate and at least one of the tabs being positioned in the second portion of the baffle plate;

the baffle plate being positioned within the heat transfer conduit and the tabs having a length and an angle which position the tabs relative to the heat transfer conduit so the tabs do not contact the heat transfer conduit and do not prevent the hot gases from flowing between the tabs and the portions of the heat transfer conduit most closely adjacent to each of the tabs;

the tabs being comprised of a portion of the baffle plate which is cut from the baffle plate and bent away from one of the first and second surfaces, each of the tabs leaving a hole in the baffle plate;

at least a portion of a side of each hole comprised of the crease of the tab which was cut and bent from the baffle plate to leave the hole, the tab and the hole which share a crease defining a tab/hole pair;

a plurality of webs, each web separating a first tab/hole pair from a second tab/hole pair which is adjacent to the first tab/hole pair in a direction substantially perpendicular to the longitudinal axis of the tab;

a plurality of the tabs being bent outwardly away from the first surface and a plurality of the tabs being bent outwardly away from the second surface;

at least six rows of tab/hole pairs, each row extending in a direction substantially perpendicular to the longitudinal axis of the baffle plate and having at least four tab/hole pairs and at least three webs, each of the tab/hole pairs in each row being separated from each adjacent tab/hole pair in the row by a web;

a plurality of rows of tab/hole pairs, which rows each have a tab/hole pair positioned in the first portion of the baffle plate and a tab/hole pair positioned in the second position of the baffle plate;

a plurality of rows of tab/hole pairs, which rows have a tab extending outwardly away from the first surface of the baffle plate and a tab extending outwardly away from the second surface of the baffle plates;

the tab/hole pairs being arranged on the baffle plate so that an equal number of tabs are on either side of the center line of the first surface of the baffle plate and the tab/ hole pairs are arranged on the first surface of the baffle plate symmetrically about the center line of the baffle plate and so an equal number of tabs are on either side of the center line of the second surface of the baffle plate and the tab/hole pairs are arranged on the second surface of the baffle plate symmetrically about the center line of the baffle plate;

the baffle plate is positioned and shaped so that the tabs are capable of deflecting the hot gases so that the hot gases are capable of flowing (1) through the holes, (2) between the tabs, (3) adjacent the webs and (4) between the tabs and the heat transfer conduit so the baffle plate, tabs, holes and webs are capable of collectively causing increased turbulence of the hot gases passing through the heat transfer conduit, the increased turbulence improving heat transfer from the hot gases within the heat transfer conduit to the shortening within the vat of the deep fryer system as compared to a similar heat exchanger for a deep fryer system which does not utilize a baffle plate.

30. The heat exchanger of Claim 29 wherein at least a portion of the webs are positioned directly upstream, with respect to the flow of hot gases, of a tab located in an immediately downstream row of tabs and at least a portion of the webs are positioned directly downstream of a tab located in an immediately upstream row of tabs.

31. A heat exchanger according to Claim 29 wherein a plurality of the webs are in a straight line, one behind another, in the direction of the longitudinal axis of the baffle plate.

32. A heat exchanger for a deep fryer system comprising, in combination:

at least one heat transfer conduit for hot gases to pass therethrough;

a baffle plate disposed within the at least one heat transfer conduit, defining a plane and having a first surface, an opposed second surface, and a longitudinal axis which divides the baffle plate into a first portion and a second portion;

a plurality of tabs, each tab having a longitudinal axis and extending outwardly away from one of the first and second surfaces of the baffle plate, an intersection of the tab and the baffle plate defining a crease, at least one of the tabs being positioned in the first portion of the baffle plate and at least one of the tabs being positioned in the second portion of the baffle plate;

substantially all of the tabs being separated from adjacent tabs by a web, each web separating a tab from another tab adjacent the tab in a direction substantially perpendicular to the longitudinal axis of the tab;

each of the tabs comprises a portion of the baffle plate which is bent outwardly away from one of the first and second surfaces;

each tab being positioned adjacent to a corresponding hole in the baffle plate;

the hot gases being capable of flowing through the hole created in the baffle plate by bending said tab out of the baffle plate;

a plurality of rows of tabs, each of which rows has a tab positioned in the first portion of the baffle plate and a tab positioned in the second position of the baffle plate;

a plurality of rows of tabs, each of which rows has a tab extending outwardly away from the first surface of the baffle plate and a tab extending outwardly away from the second surface of the baffle plates;

a majority of the tab/hole pairs created by bending the tab from the baffle plate leaving a hole in the baffle plate are positioned in a plurality of rows of tab/hole pairs tabs, each row of tab/hole pairs extending in a direction substantially perpendicular to the longitudinal axis of the baffle plate;

each row of tab/hole pairs has a tab positioned in the first portion of the baffle plate and a tab positioned in the second position of the baffle plate;

each row of tab/hole pairs has a tab extending outwardly away from the first surface of the baffle plate and a tab extending outwardly away from the second surface of the baffle plate;

a plurality of the rows of tabs have at least three tabs, a first tab positioned above the plane of the baffle plate, a second adjacent tab separated from the first tab by a web and positioned below the plane of the baffle plate, and a third tab, separated by a web from the second tab and positioned above the plane of the baffle plate; and

the tabs are located, and shaped so the tabs are capable of deflecting the hot gases and the hot gases are flowable (1) through the holes, (2) between the tabs and (3) between the tabs and the heat transfer conduit so the baffle plate, tabs, and holes are capable of collectively causing increased turbulence of the hot gases passing through the heat transfer conduit to improve heat transfer from

the hot gases through the heat transfer conduit to the shortening within the vat of the deep fryer system as compared to a heat exchanger for a deep fryer system which does not utilize a baffle plate.

33. A heat exchanger according to Claim 32, wherein each tab extends outwardly at an acute angle with respect to the surface of the baffle plate from its crease and each tab being capable of deflecting the hot gases through its corresponding hole in the baffle plate and outwardly away from the baffle plate.

34. A heat exchanger according to Claim 32, wherein an approximately equal number of tabs are on either side of the longitudinal axis of the baffle plate and the tabs are arranged on the baffle plate generally symmetrically about the longitudinal axis of the baffle plate.

35. A heat exchanger according to Claim 32 wherein the heat exchanger has a plurality of heat transfer conduits located within the vat containing shortening.

36. A heat exchanger according to Claim 32, additionally comprising at least six rows of tabs on the baffle plate, including at least three tabs per row.

37. A baffle for a heat exchanger in a deep fryer, the heat exchanger having at least one transfer conduit for hot gases to pass therethrough, comprising, in combination:

a baffle plate positioned within the at least one heat transfer conduit defining a plane and having a first surface, and an opposed second surface and a longitudinal axis which divides the baffle plate into a first portion and a second portion;

a plurality of rows of tabs, at least three tabs in most of the rows of tabs, each tab comprising a portion of the baffle plate that is bent outwardly from one of the first and second surfaces and leaving a hole in the baffle plate, having a longitudinal axis, and defining a crease along an intersection of the tab and the baffle plate, at least one tab in each row being positioned in the first portion of the baffle plate, at least one tab in each row being positioned in the second portion of the baffle plate;

at least a portion of a side of each hole comprises the crease of the tab the hole is adjacent to, the tab extending outwardly from the baffle plate over at least part of the adjacent hole, the tab and the hole which share a crease defining a tab/hole pair;

a plurality of adjacent tabs being separated from each other by a web;

a plurality of rows of webs, at least two webs in most of the rows of webs, each web separating a tab from another adjacent tab in a direction substantially perpendicular to the longitudinal axis of the baffle plate; the tabs and webs are positioned upon the baffle plate and shaped so the tabs are capable of deflecting the hot gases and the hot gases are flowable between the tabs and adjacent to the webs;

and wherein the tabs are positioned and shaped so the tabs are capable of deflecting the hot gases and the hot gases are flowable (1) through the holes, (2) between the tabs and (3) between the tabs and the heat transfer conduit so the baffle plate, tabs, and holes are capable of collectively causing increased turbulence of the hot gases passing through the heat transfer conduit to improve heat transfer from the hot gases through the heat transfer conduit to the shortening within the vat of the deep fryer system as compared to a heat exchanger for a deep fryer system which does not have a baffle plate.

38. The heat exchanger of Claim 37, wherein the crease of a plurality of tabs in each row of tabs is directly downstream, with respect to the flow of the hot gases, of the creases of the tabs in the rows of tabs directly upstream and directly upstream of the creases of the tabs in the row of tabs directly downstream.

39. A heat exchanger according to Claim 37 wherein each row of tab/hole pairs has a tab extending outwardly away from the first surface of the baffle plate and a tab extending outwardly away from the second surface of the baffle plate.

40. A heat exchanger according to Claim 37 wherein an approximately equal number of tabs are on either side of the longitudinal axis of the baffle plate and the tabs are arranged on the baffle plate generally symmetrically about the longitudinal axis of the baffle plate.

41. A heat exchanger according to Claim 37, additionally comprising at least six rows of tabs on the baffle plate including at least three tabs per row.

42. A deep fryer system having a heat exchanger and a burner to heat air flowing through the heat exchanger, at least a portion of the heat exchanger being within the deep fryer system's vat containing shortening, the heat exchanger portion of the deep fat fryer system comprising:

at least one heat transfer conduit having hot gases passing therethrough;

a baffle plate disposed within the at least one heat transfer conduit defining a plane and having a first surface, an opposed second surface, and a longitudinal axis which divides the baffle plate into a first portion and a second portion;

a plurality of tabs, each tab having a longitudinal axis and extending outwardly away from one of the first and second surfaces of the baffle plate, an intersection of the tab and the baffle plate defining a crease, the crease being created by bending the tab from the baffle plate, at least one of the tabs being positioned in the first portion of the baffle plate and at least one of the tabs being positioned in the second portion of the baffle plate;

the tabs being comprised of a portion of the baffle plate which is cut from the baffle plate and bent away from one of the first and second surfaces, each of the tabs leaving a hole in the baffle plate;

at least a portion of a side of each hole is comprised of the crease of the tab which was cut and bent from the baffle plate to leave the hole, the tab and the hole which share a crease defining a tab/hole pair;

a plurality of webs, each web separating a first tab/hole pair from a second tab/hole pair which is adjacent to the first tab/hole pair in a direction substantially perpendicular to the longitudinal axis of the tab;

a plurality of the tabs being bent outwardly away from the first surface and a plurality of the tabs being bent outwardly away from the second surface;

a plurality of rows of tab/hole pairs, each row extending in a direction substantially perpendicular to the longitudinal axis of the baffle plate and having at least three tab/hole pairs, each of the tab/hole pairs in each row being separated from each adjacent tab/hole pair in the row by a web;

there being at least two webs in each row of tab/hole pairs, the webs in each row of the tab/hole pairs comprising a row of webs extending in a direction substantially perpendicular to the longitudinal axis of the baffle plate;

a plurality of rows of webs, at least two webs in most of the rows of webs, each web separating a tab from another adjacent tab in a direction substantially perpendicular to the longitudinal axis of the baffle plate; the tabs and webs are positioned and shaped so the tabs are

capable of deflecting the hot gases and the hot gases are flowable between the tabs and adjacent to the webs;

a plurality of rows of tab/hole pairs, which rows each have at least one tab/hole pair positioned in the first portion of the baffle plate and at least one tab/hole pair positioned in the second position of the baffle plate;

a plurality of rows of tab/hole pairs; which rows have at least one tab extending outwardly away from the first surface of the baffle plate and at least one tab extending outwardly away from the second surface of the baffle plate;

a plurality of webs arranged in a straight line, one behind the other, in the direction of the longitudinal axis of the baffle plate;

wherein the crease of a plurality of tabs in each row of tabs being directly downstream with respect to the flow of the hot gases of the creases of the tabs in the rows of tabs directly upstream and being directly upstream of the creases of the tabs in the row of tabs directly downstream; and

the baffle plate with its tab/hole pairs and webs is positioned within the conduit and shaped so that the tabs are capable of deflecting the hot gases and the hot gases are flowable (1) through the holes, (2) between the tabs, (3) adjacent to the webs and (4) between the tabs and the heat transfer conduit so the baffle plate, tabs, and holes are capable of collectively causing increased turbulence in the hot gases passing through the heat transfer conduit to improve heat transfer from the hot gases

through the heat transfer conduit to the shortening within the vat of the deep fryer system as compared to a similar heat exchanger for a deep fryer system which does not utilize a baffle plate.

43. A heat tube baffle for a deep fat fryer wherein the fryer includes an oil tank for cooking food with at least one heat tube extending therethrough in heat exchange relationship with said tank wherein cooking oil in said tank is heated by said tube and wherein a burner generates products of combustion which flow through said tube from an entrance to an exit, said baffle comprising:

an elongated, rectangular metal plate having opposed faces, the plate disposed within the tube and extending within the tube, the plate having a plurality of mutually spaced tabs struck thereof, in mutually spaced rows and extending at an acute angle to the plate along the length thereof, each of the tabs in each row extending outwardly toward an adjacent tube wall and directed upstream of the flow, each struck tab leaving a corresponding hole in the plate whereby products of combustion in the flow are directed through the hole by the tab.

Following amendment/entry of these claims, please cancel claims 2-5.

IN THE DRAWINGS

A separate paper entitled "Request for Drawing Change", as required under 37 CFR 1.173(b)(3), is attached. This separate paper requests approval by the Examiner of the changes and includes sketches illustrating proposed changes to Figures 3, 7 and 8 in permanent red ink.

REMARKS

Applicant has amended claims 1, 6, 8, 9, 10, 11, 12, 13, 20, 21 and 25, and added new claims 26-43. Claims 2-5 have been cancelled. Claims 6, 7, 14 and 22-24 remain unchanged. "Fig. 2" on Line 63, Column 3 of the printed patent had been amended to "Fig. 3" and additional paragraphs had been added to the specification at Line 13, Column 6. Applicant has requested amendment of Figures 3, 7 and 8 in a separate paper as required under 37 CFR 1.173(b)(3). Applicant respectfully requests that each of the above amendments be entered in the above application.

Respectfully submitted,
JACKSON WALKER L.L.P.

[signature]

Mark H. Miller, Reg. No. 29197
112 E. Pecan Street, Suite 2100
San Antonio, Texas 78205
Phone: (210) 978-7700
Fax: (210) 978-7790
Attorneys for Applicant

CERTIFICATE OF EXPRESS MAILING

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited on the date shown below with the United States Postal Service, as Express Mail Post Office to Addressee (37 CFR 1.10), Mailing Label No. EL662642244US addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Date: February 8, 2002

Carolyn J. Gill

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of: §
Albert Charles McNamara §
§
Patent No. 5,901,641 §
§
Issued: May 11, 1999 §
§
Title: Baffle for Deep Fryer Heat Exchanger §
§

Attorney Docket No. P-109009(Reissue)

Group Art Unit: ____________

Examiner: ________________

BOX REISSUE
Commissioner of Patents and Trademarks
Washington, D.C. 20231

REQUEST FOR DRAWING CHANGES IN REISSUE APPLICATION

To the Assistant Commissioner of Patents:

1. Applicant respectfully submits drawing changes as required under 37 CFR 1.173(b)(3). Applicant respectfully requests that the Examiner approve amendment of Figures 3, 7 and 8 as illustrated in permanent red ink upon the attached drawing sketches.

Respectfully submitted,

Jackson Walker L.L.P.
112 E. Pecan Street, Suite 2100
San Antonio, TX 78205
Phone: (210) 978-7700
Fax: (210) 978-7790

By ______________________
Mark H. Miller
Regis. No. 29,197

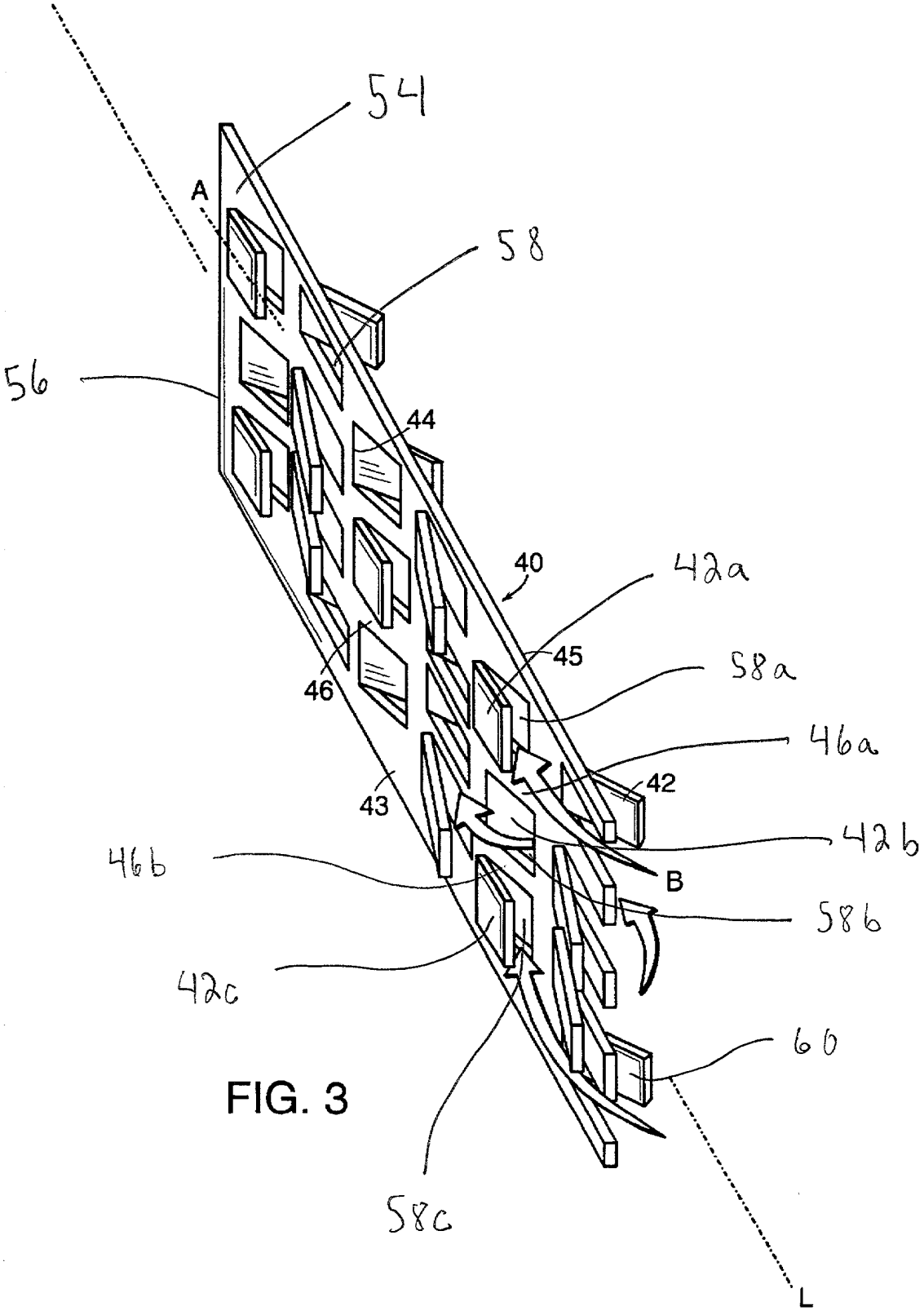

FIG. 3

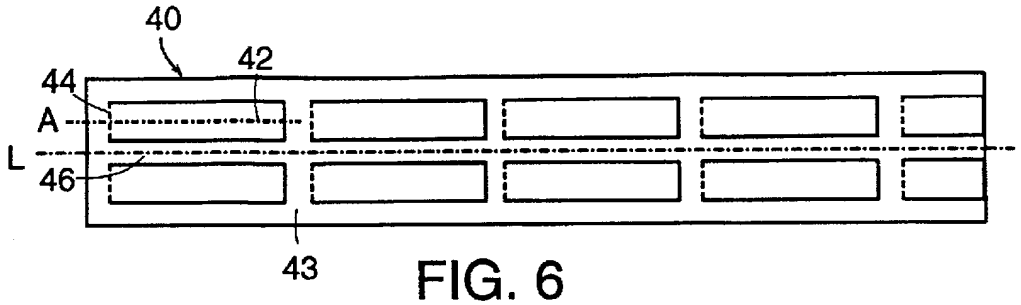

FIG. 6

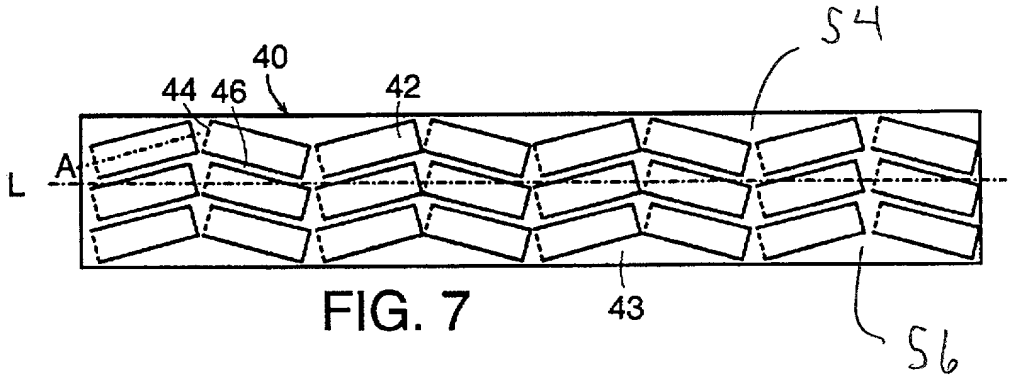

FIG. 7

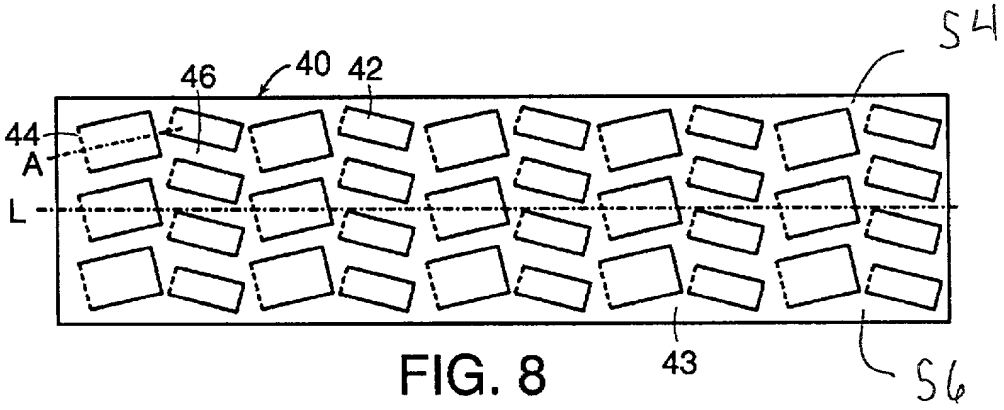

FIG. 8

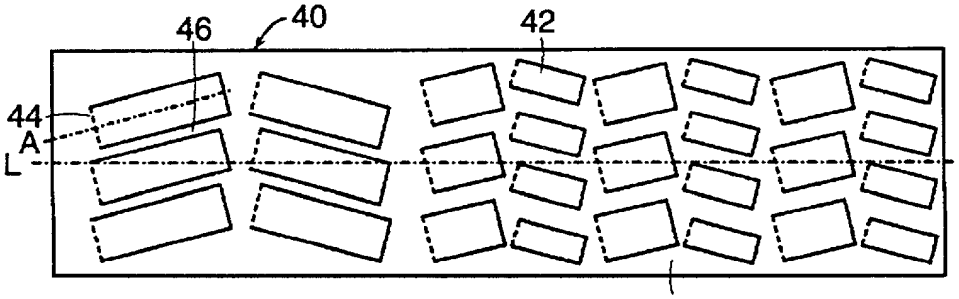

FIG. 9

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of: Albert Charles McNamara	§	Attorney Docket No. P-109009(Reissue)
Patent No. 5,901,641	§	Group Art Unit: ____________
Issued: May 11, 1999	§	Examiner: ________________
Title: Baffle for Deep Fryer Heat Exchanger	§	

BOX REISSUE
Commissioner of Patents and Trademarks
Washington, D.C. 20231

STATUS OF CLAIMS AND SUPPORT FOR CLAIMS CHANGES
(37 C.F.R. § 1.173(c))

1. The status of the claims as a result of the amendment submitted herewith is:

Claims cancelled: 2-5.

Claims amended: 1, 6, 8, 9, 10, 11, 12, 13, 20, 21 and 25.

Claims added. 26-43.

2. The support in the disclosure of the patent for the changes made to the claims and for the claims added is demonstrated on this page and one (1) additional page as follows:

****

Claim 1:

Amendment to claim 1 is supported generally by the Specification and by Figures 3-9. Particularly, the Examiner's attention is directed to Column 1, Lines 11-23; Column 3, Lines 36-65; Column 4, Lines 60-63 of the Specification and to Figures 3, 4 and 5.

Claim 6:

The Examiner's attention is directed to Column 2, Line 29 and Column 4, Line 50 of the Specification.

Claim 8:

The Examiner's attention is directed to Column 1, Line 16; Column 3, Lines 16-17; Column 3, Lines 36-65 of the Specification and to Figure 3.

Claims 9-13:

The Examiner's attention is directed to Column 1, Line 16 and Column 3, Lines 16-17 of the Specification. Other amendment made to account for cancellation of Claim 4.

Claims 20-21:

The Examiner's attention is directed to Column 1, Line 16 and Column 3, Lines 16-17 of the Specification. Other amendment made to account for cancellation of Claim 5.

Claim 25:

The Examiner's attention is directed to Column 1, Line 16 and Column 3, Lines 16-17 of the Specification.

Claims 26-43:

Support for new claims 26-43 may be found in the Specification and the Figures. Specifically, features of the invention not previously claimed in the original patent, such as "holes" and "tab/hole pair" may be found in Figures 3-10. A detailed explanation of the support for each claimed feature is provided in the amended specification for the Examiner's review.

Respectfully submitted,

Jackson Walker L.L.P.
112 E. Pecan Street, Suite 2100
San Antonio, TX 78205
Phone: (210) 978-7700
Fax: (210) 978-7790

By _____
Mark H. Miller
Regis. No. 29,197